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Cuccia

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(54) **FOOT AND CALF SUPPORT AND ADJUSTMENT ASSEMBLY**

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(22) Filed: **Jul. 25, 2005**

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Related U.S. Application Data

(63) Continuation of application No. 10/413,730, filed on Apr. 15, 2003, now Pat. No. 6,923,825, which is a continuation-in-part of application No. 09/661,078, filed on Sep. 13, 2000, now Pat. No. 6,547,809.

(51) **Int. Cl.**
A61F 5/00 (2006.01)

(52) **U.S. Cl.** **606/244**; 606/241; 606/242

(58) **Field of Classification Search** 606/237, 606/241, 242, 243, 244, 245; 602/32–36; 601/23, 24, 26; 482/112, 113, 142; 5/612, 5/618, 658, 662; 128/845
See application file for complete search history.

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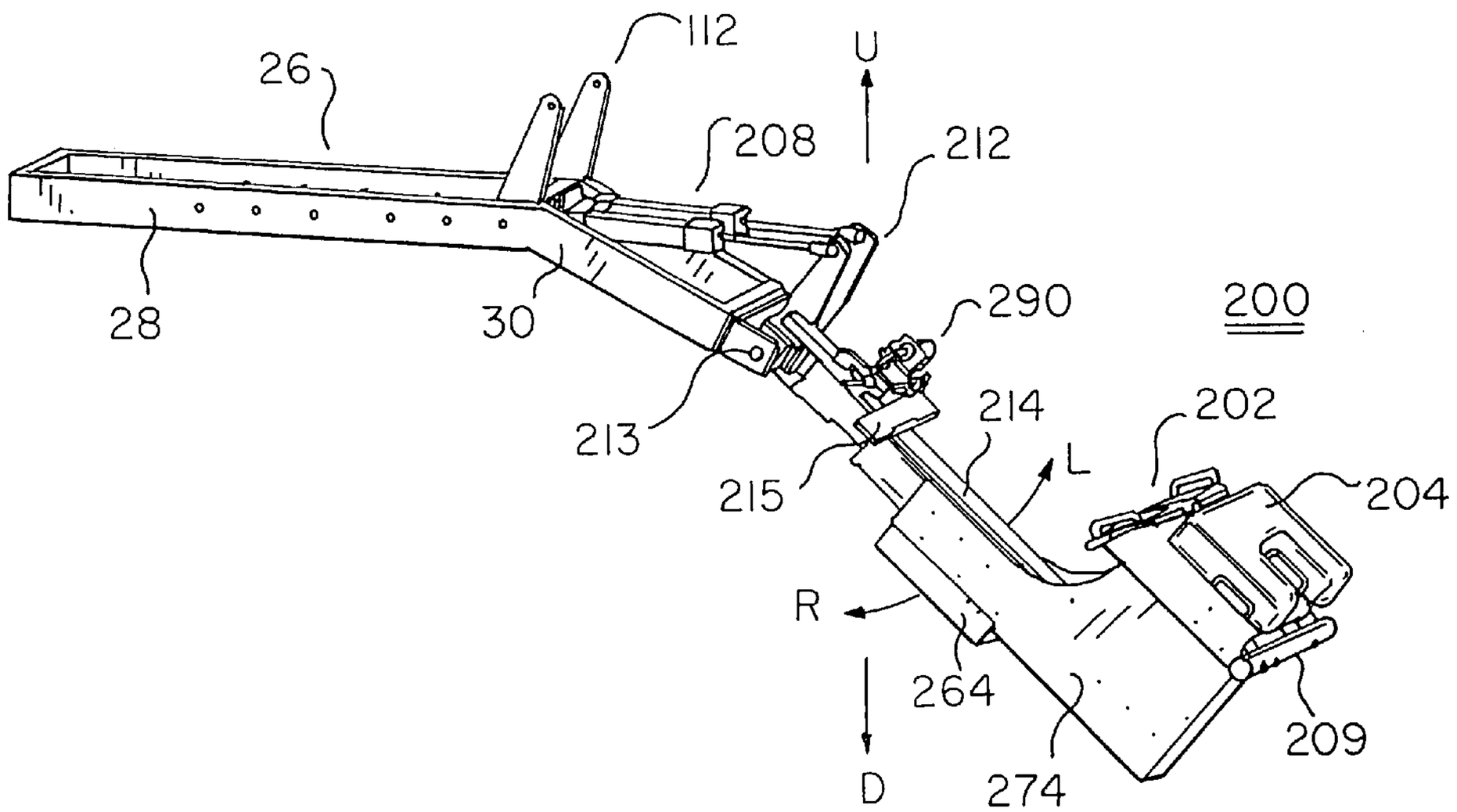
(57) **ABSTRACT**

A calf/foot support and treatment table for extension, flexion, traction, distraction and lateral movement of the body of a patient includes a base adapted to rest upon a floor, and a system support assembly having an upper end and a lower end integrally secured to the base, a rigid support platform having a lower part and an upper part, the support platform pivotally secured to a pivot axle of said system support assembly; a lumbar support assembly disposed on the lower part of the support platform; and a calf/foot support assembly for linear traction.

17 Claims, 12 Drawing Sheets



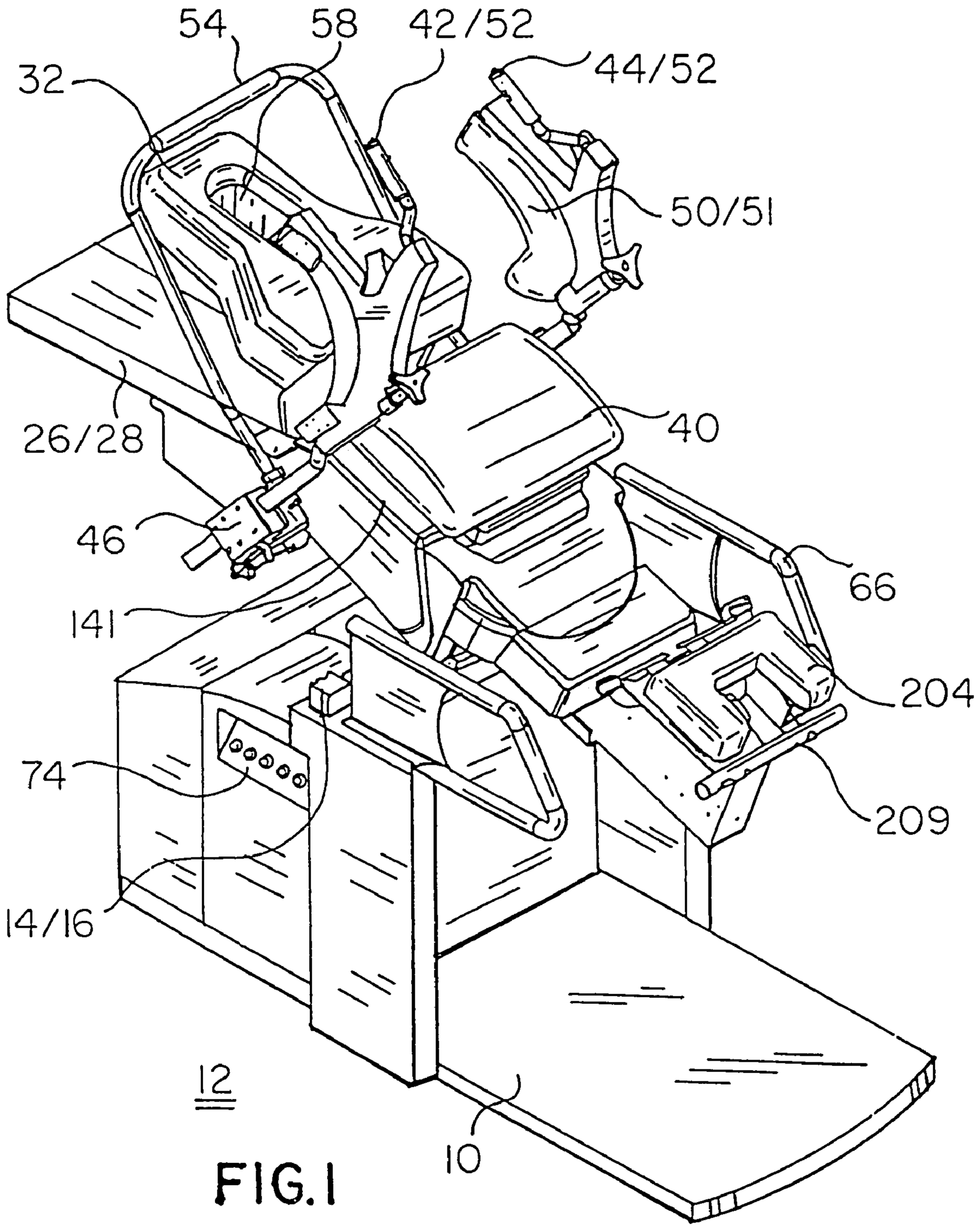


FIG.1

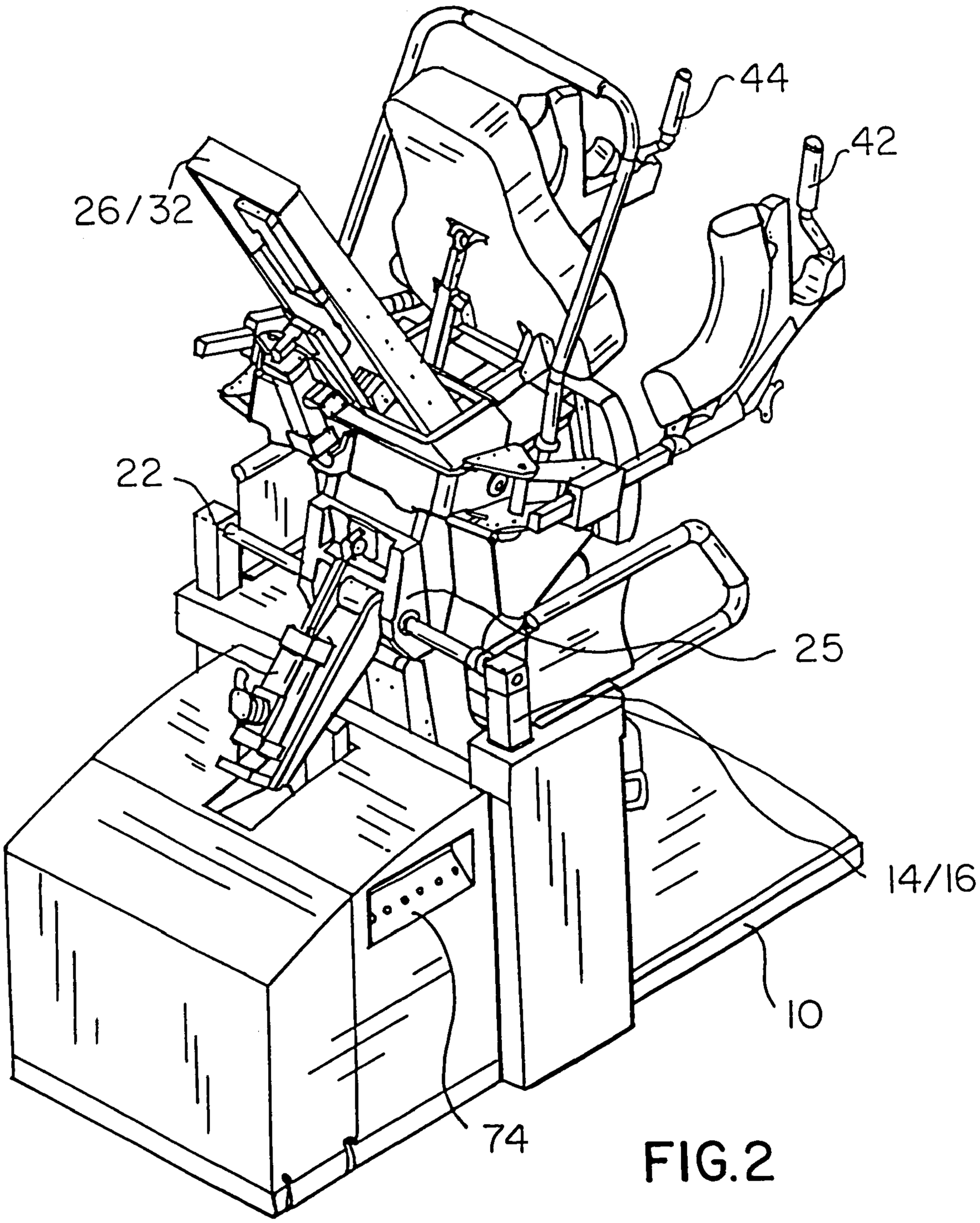


FIG.2

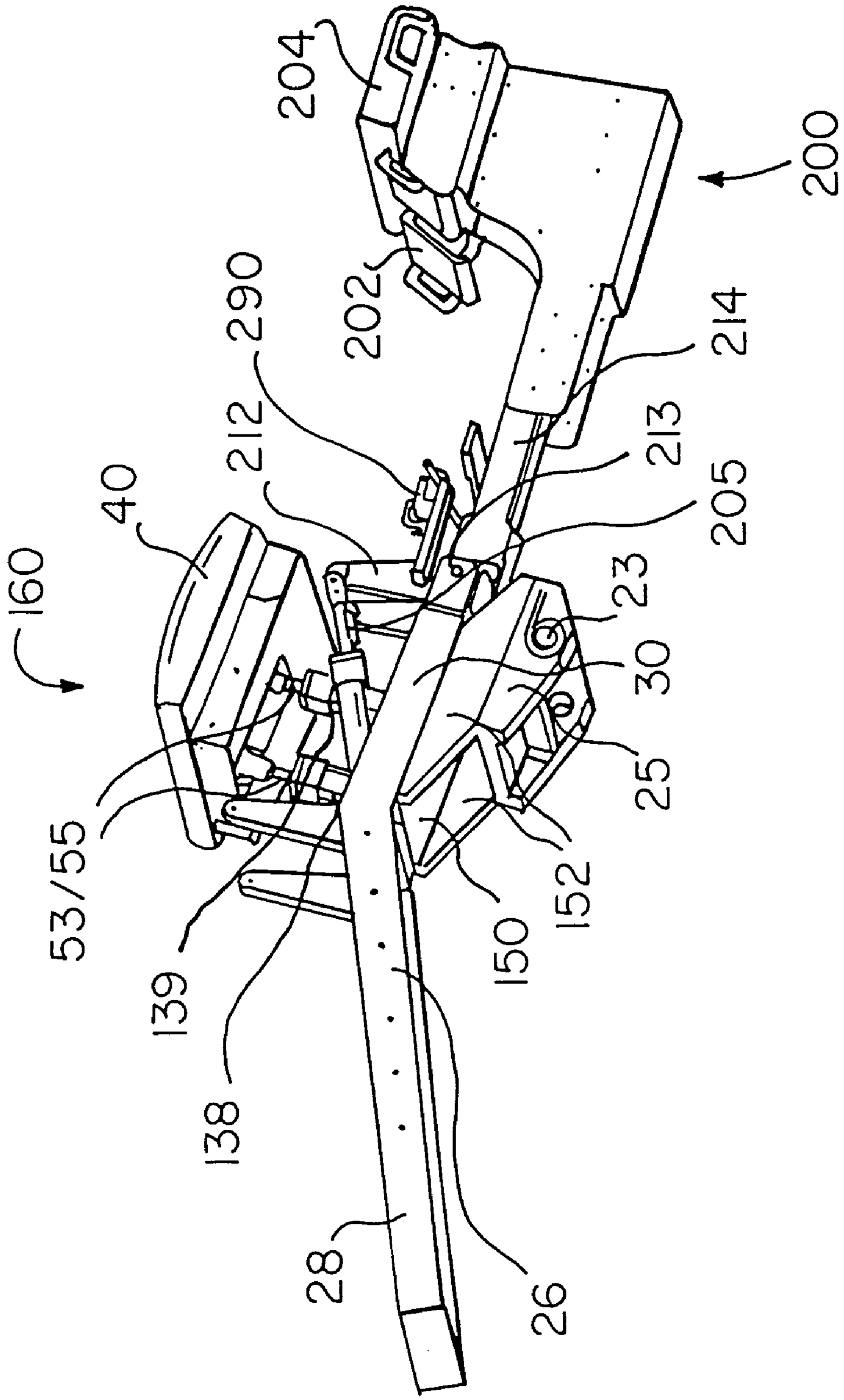
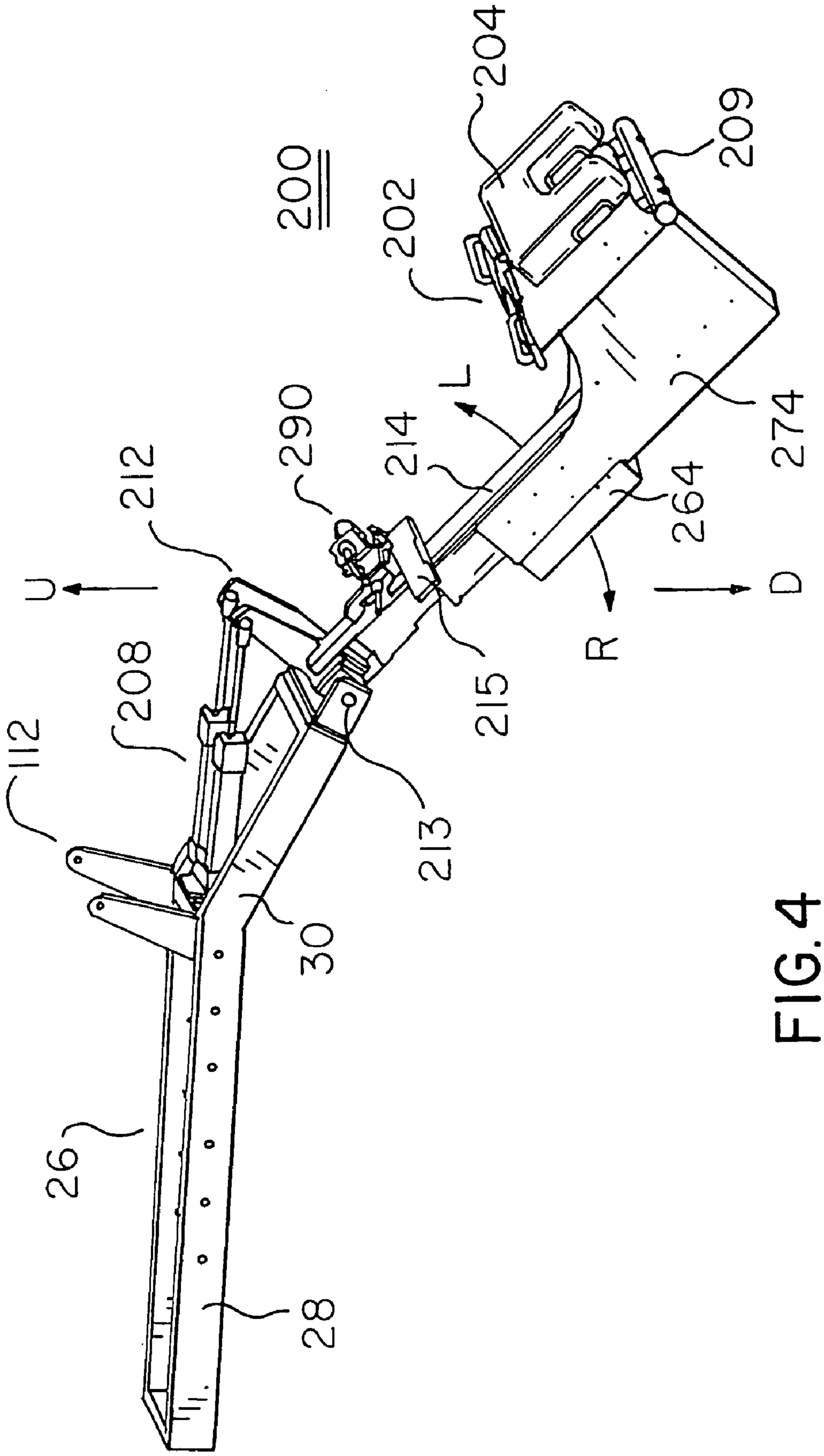

204
200
290
202
214
212
213
40
205
160
23
30
53/55
25
152
150
139
138
28
26

FIG.3


200
202
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206
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264
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FIG. 4

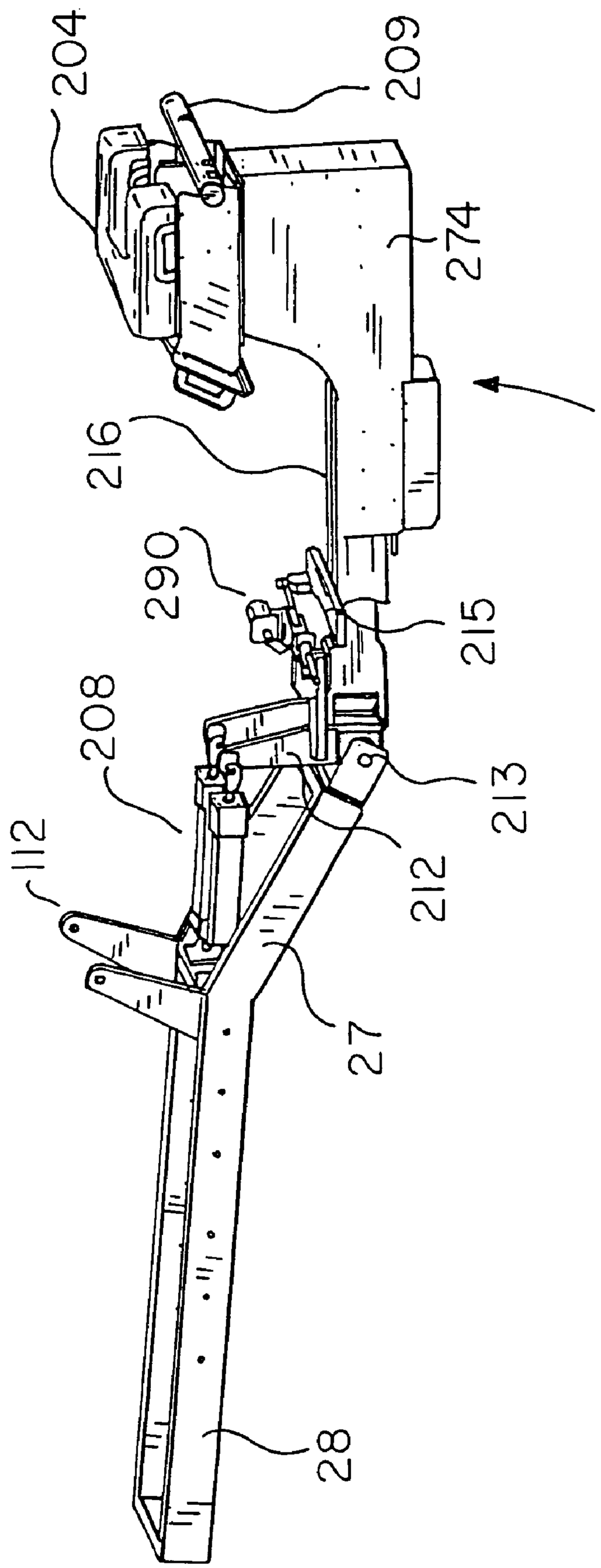
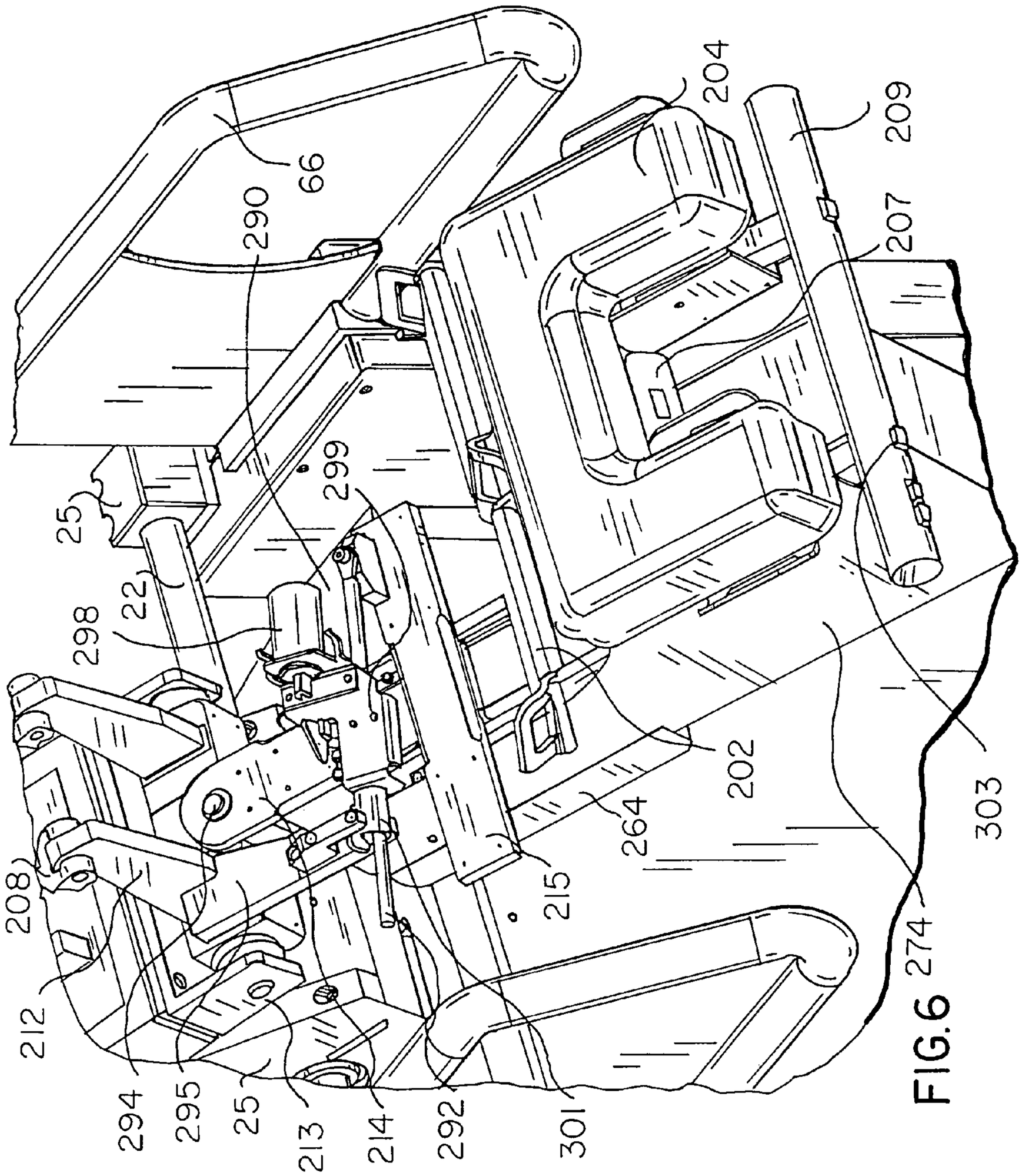


FIG.5


204
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290
66
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301
274

FIG.6

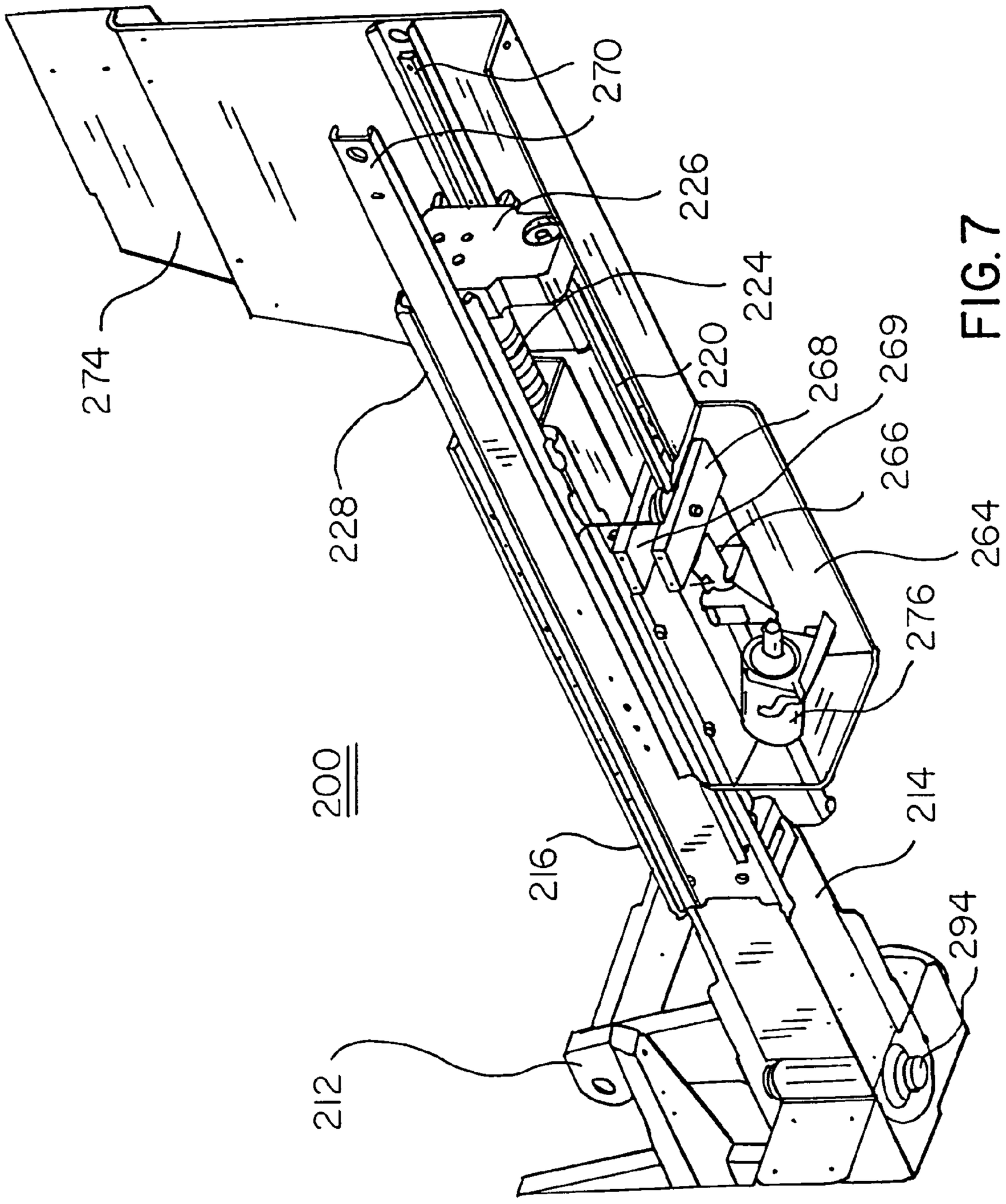


FIG. 7

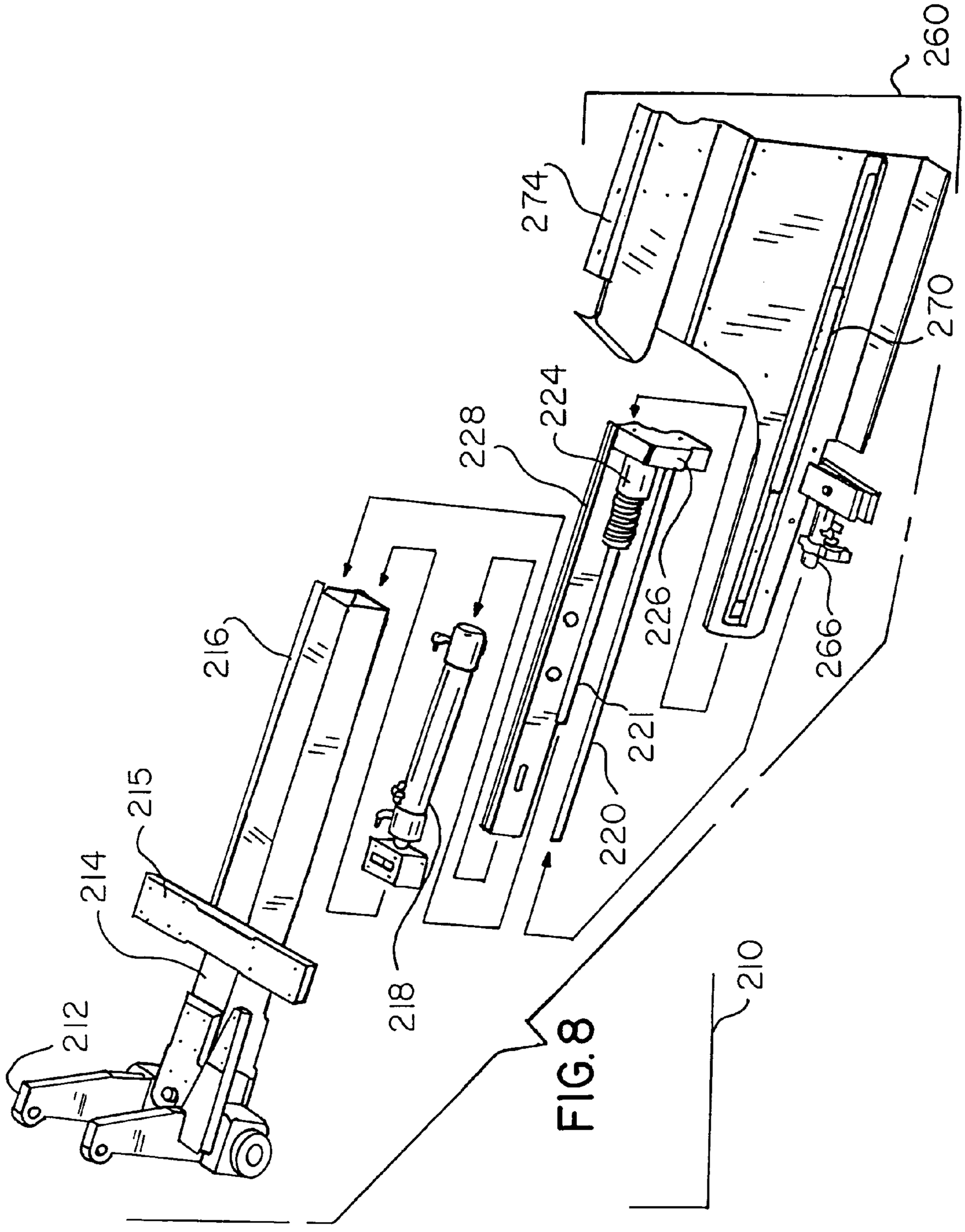


FIG. 8

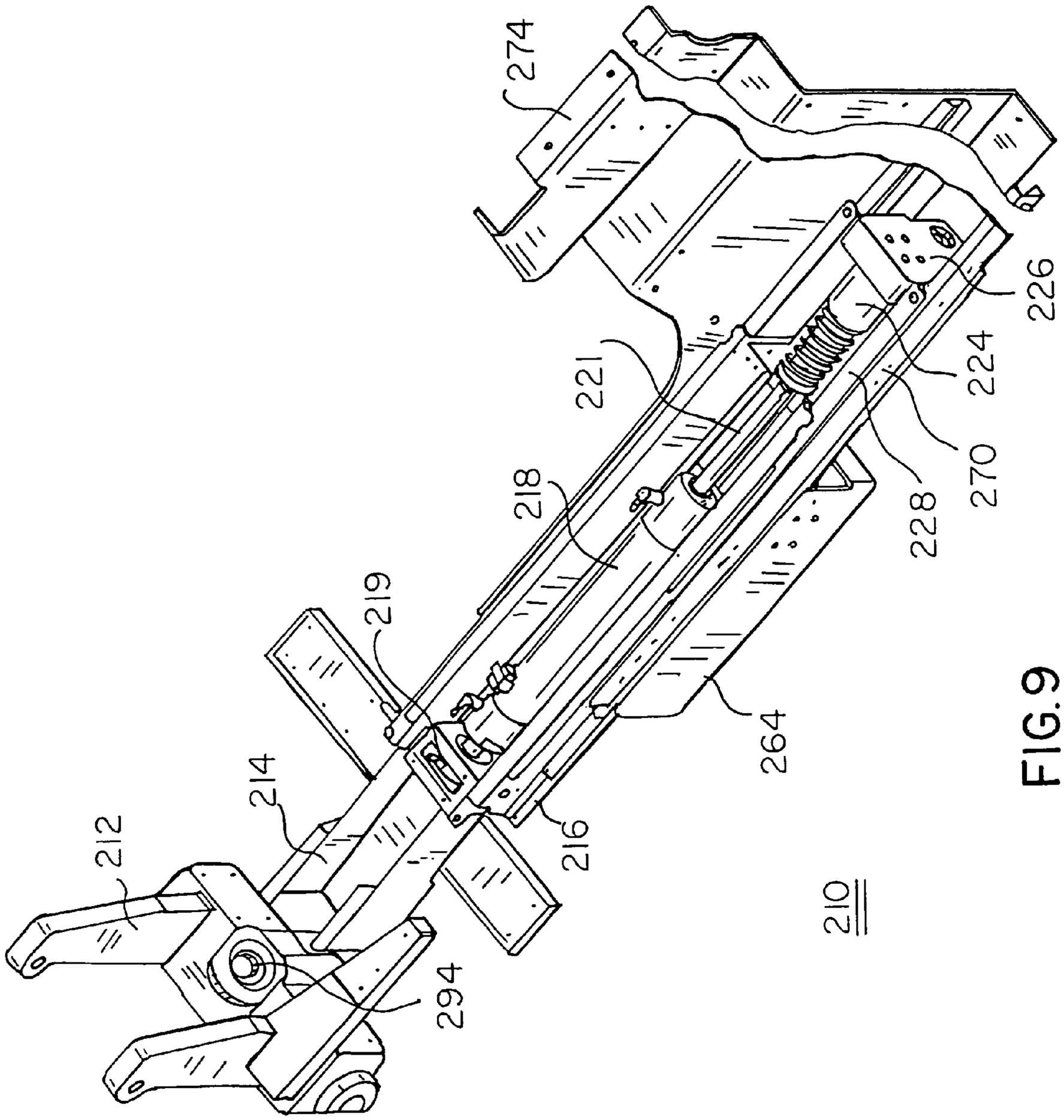


FIG.9

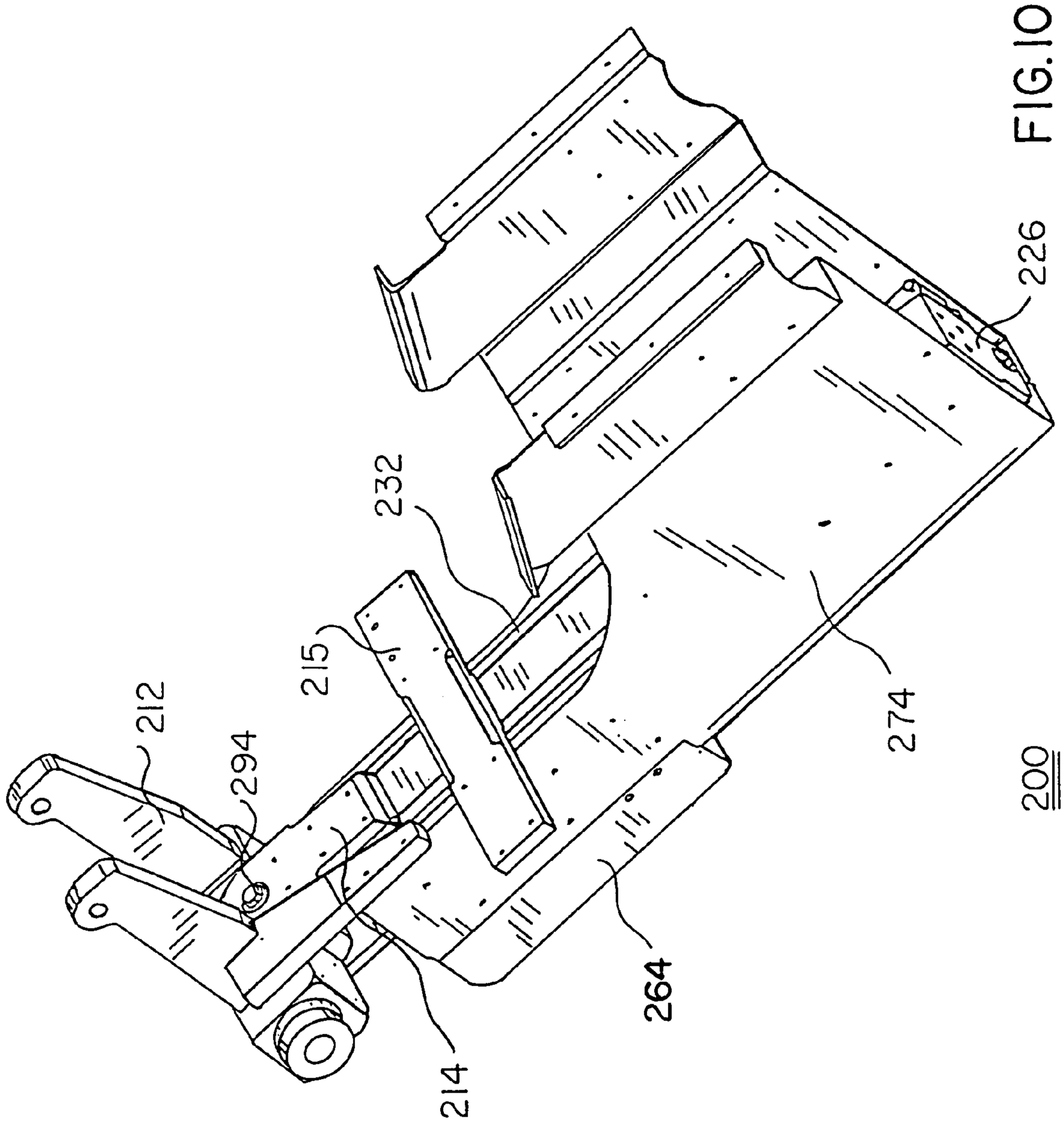


FIG. 10

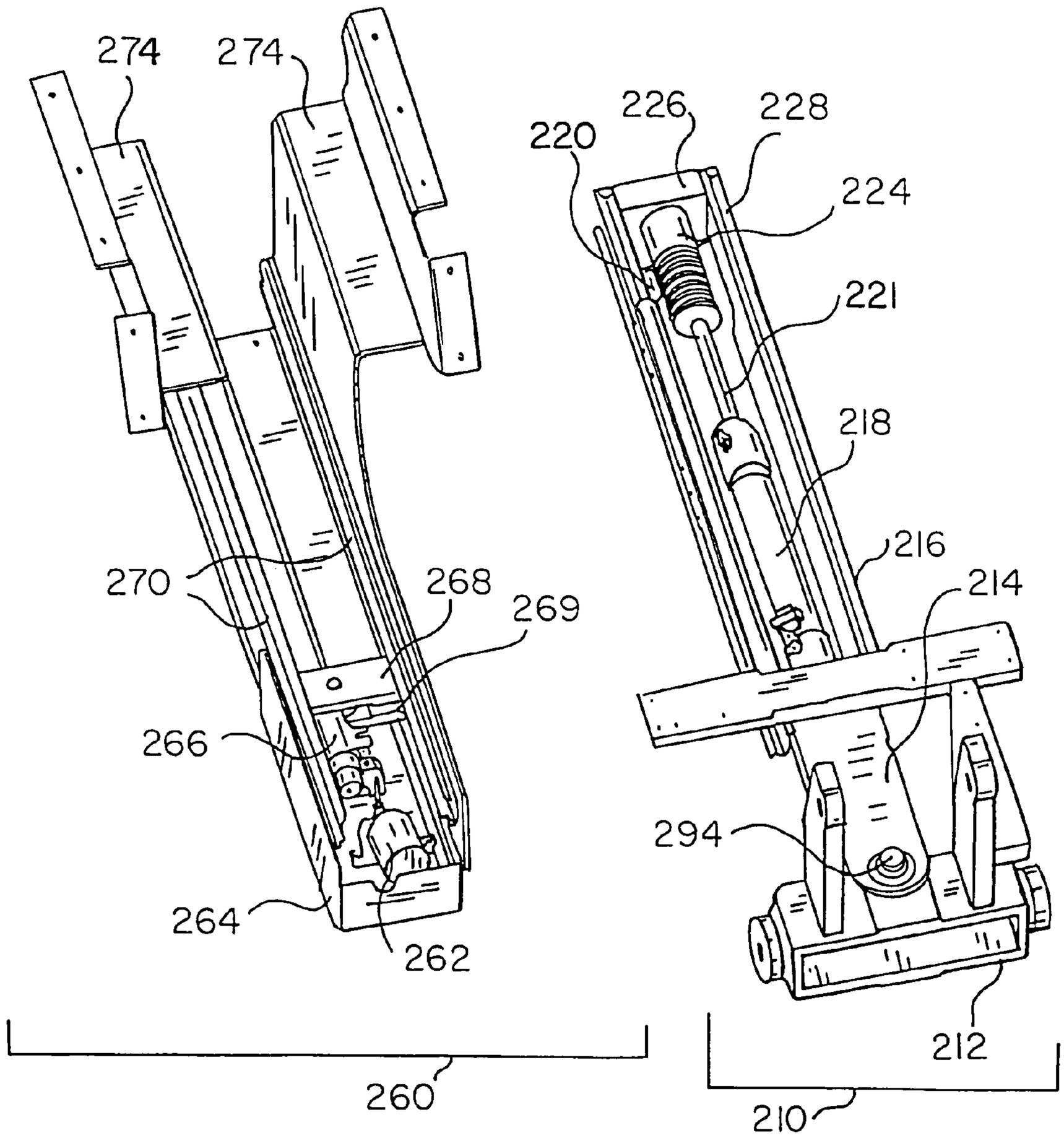
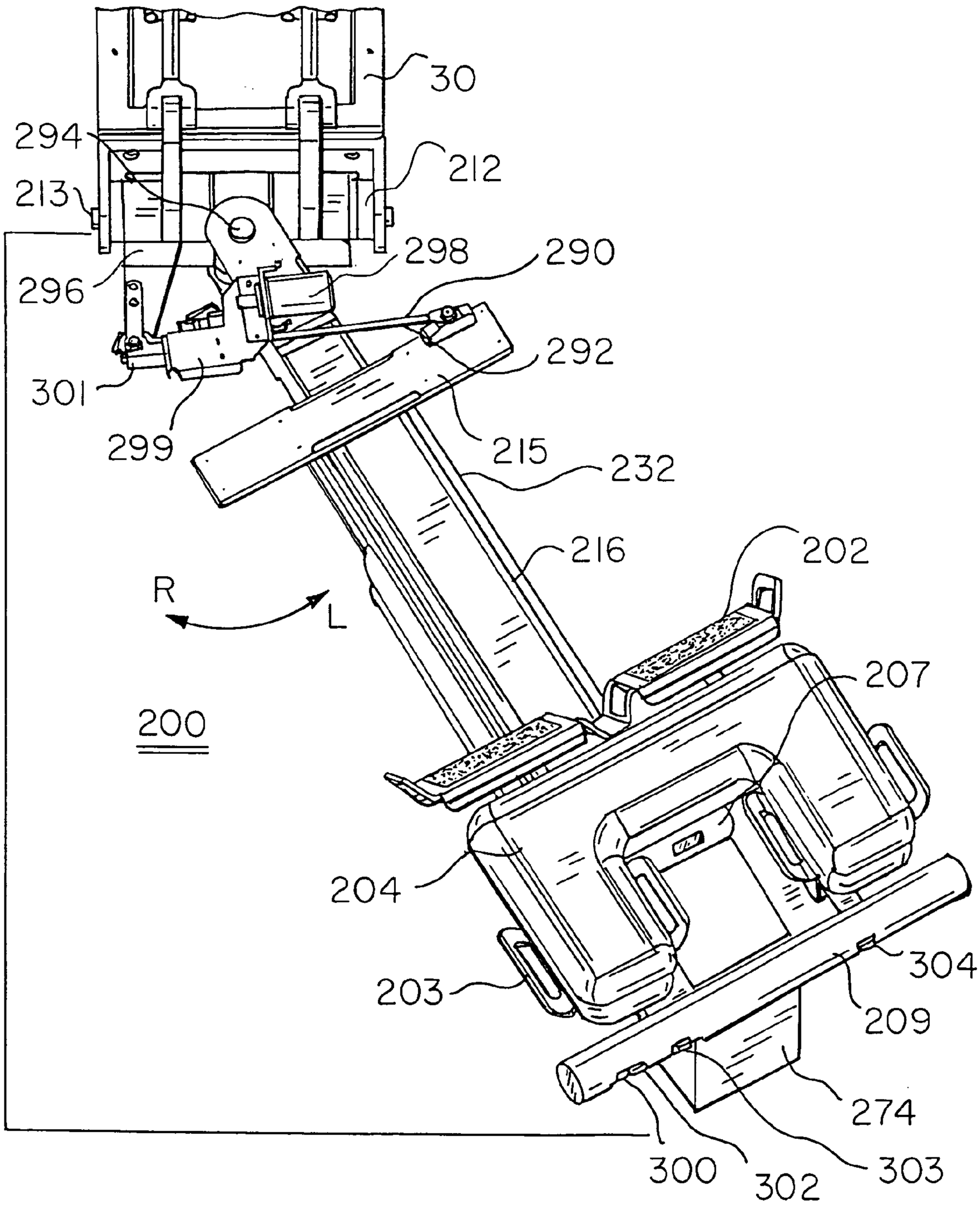

274
274
220
226
228
224
221
218
216
214
270
268
269
266
294
264
262
260
212
210

FIG. 11


30
294
212
213
298
290
296
292
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299
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232
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202
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207
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209
274
300
302
303

FIG. 12

FOOT AND CALF SUPPORT AND ADJUSTMENT ASSEMBLY

REFERENCE TO RELATED APPLICATION

This application is a continuation of patent application Ser. No. 10/413,730, filed Apr. 15, 2003, now U.S. Pat. No. 6,923,825, which is a continuation-in-part of application Ser. No. 09/661,078, filed Sep. 13, 2000, now U.S. Pat. No. 6,547,809. All prior applications are hereby incorporated by reference in their entirety.

BACKGROUND OF THE INVENTION

The within invention is an improvement of the inventions of my U.S. Pat. No. 4,915,101 (1990), U.S. Pat. No. 5,922,011 (1999), and that reflected in my application Ser. No. 09/661,078, filed Sep. 13, 2000.

Numerous devices, including chiropractic, osteopathic, obstetrical, delivery, x-ray and operating tables, which suspend or position a patient in a unique way for some special purpose, are known in the art.

U.S. Pat. No. 4,568,669 (1971) to Stiles discloses a posture board wherein the patient is rotated 180 degrees from an initial upright position on his back to one of complete inversion hanging by the ankles. With the body hanging freely, normal gravitational pull is reversed thus causing a therapeutic effect on bone structure, spinal column, muscles, internal organs and body fluids. U.S. Pat. No. 4,103,681 (1978) to Shanley similarly discloses a tilting traction apparatus where the patient, again lying on his back, is rotated about a pivot point to treat back injury or postural misalignment.

U.S. Pat. No. 4,292,926 (1981) to Krause presents an apparatus for effecting postural treatment of humans in which the patient, while resting face down on a pivoting platform, can vary the position of his arms, adjust his center of gravity while in suspension and, thereby, affect his posture upon the table.

It is to be appreciated that the success of any device designated to treat lower back dysfunction is in large part dependent on proper positioning of the patient prior to, during, and after treatment. For example, in standard traction therapy, the patient wears a pelvic harness and is positioned supinely (face up) in bed, with the spine slightly flexed and knees bent. Straps or roping which is attached to the harness are then inserted into a pulley mechanism and weights attached at an opposite end, causing a desired pulling/traction effect. Such pulling traction force produces an elongation of the spinal column (distraction) and a reduction in internal intervertebral disc pressure. This creates a vacuum phenomenon inside the disc, which retracts protruded gelatinous material back into its fibrous casing and off of the spinal nerve roots. With the pain gone and the anatomy restored to its natural state, the traction phase of therapy is complete.

An alternate theory for accomplishing the same result is based on extension, rather than flexion of the spine, to achieve reduced intradiscal pressure, while simultaneously anatomically moving nerve roots away from the herniated disc.

While the general principles of flexion and axial traction of the spine are known in the art and have been effected in various strap and/or harness arrangements, either alone or in combination with rotating-pivot type tables as are described above, the inventor has found that both flexion and extension, as well as lateral positioning with traction, can all be beneficial depending upon the patient's particular ailment or condition.

As such, there exists a need for a system which combines varying degrees of both traction or distraction with concomitant patient position flexion, extension, lateral flexion, and or axial spinal positioning. The present invention being both beneficial to the patient and convenient to the doctor, fulfills this need in a variety of ways in that the inventive treatment table not only enables rotation of a patient about a pivot point but, additionally, permits the relative, selectable positioning of the patient's arms, upper torso, legs, lower back, head and shoulders through manual adjustment or an automatic keypad control. The present invention also allows a complete choice as to prone, supine or lateral positioning of the patient prior to treatment. It further enables the doctor to vary the position of the patient prior to and during treatment, and to vary the degree of tractive force applied to the patient by selectably variably rotating the patient platform to increase or decrease the tractional gravitational pull applied through such rotation. There is further provided a "dynamic rotation" into a variable vertical traction position, i.e., the patient stands upright against the table, supported by an adjustable shoulder, arm and hand support and is lifted off the ground, thereby achieving tractional dynamics related to those described above, namely a rapid lengthening of the muscles and longitudinal ligaments of the spine increasing the separation of the intervertebral disc and articular joint spaces. This results in both mobilization of the spine and rapid development through the "disc unloading" of a negative internal disc pressure responsible for causing the vacuum phenomenon for retracting protruding disc material back within the borders of a healthy disc while keeping the patient suspended in mid-air, or while the patient remains standing on a weighted patient platform, utilizing the weight of the lower extremity, the force of gravity, and selected patient anatomical positioning.

My instant invention therefore defines functionally over the structure of my earlier inventions in the following material respects:

1. Ability to concurrently or sequentially lift and rotate the patient, thus providing various treatment options to the physician, including more effective traction of vertebral segments prior to and during table and patient rotation, thereby reducing stress on articulate vertebral surfaces of the patient and obtaining a generally more ergonomic patient interface.
2. Ability to change radius of lower back support assembly, to effectuate varying degrees of lumbar extension and lumbar support, as well as a general mobilization of the lumbar spine (lower back).
3. Ability to tilt, at a variety of angles, the top or bottom half of the lower back support assembly, allowing a greater range of positions of the patient's lumbar spine, and to increase or decrease the lumbar lordosis.

SUMMARY OF THE INVENTION

A foot and calf support and treatment table for extension, flexion, traction, distraction and lateral movement of the spine and lower body of a patient is provided. The table more particularly includes a base adapted to rest upon a floor, and system support means having an upper end and a lower end integrally secured to said base, said support means including a pivot axis proximal to said upper end thereof. The treatment table also includes means for selectable reciprocal extension having an upper end and a lower end,

one end pivotally attached to said system support means, said selectable extension means providing reciprocal movement of said one end relative to an opposite end thereof. The table further includes a rigid support platform having an upper end and a lower end, said platform pivotally secured to said pivot axis of said support means and, further, pivotally secured to said one end of said selectable extension means, thereby providing a resultant rotational motion of the support platform. The treatment table yet further includes a body support assembly adjustably positionable relative to said rigid support platform, said assembly having an upper end and a lower end; and means for enabling said patient to remain on said body support assembly during rotational movement thereof.

A principal object of the invention is to provide a multipurpose table to effectuate flexion, extension, traction, lateral movement and distraction of the spine, as may be required in the treatment of spinal disorders and/or maintenance of proper human posture, in such a manner that the relative positions of the patient's arms, legs, lower back, head and shoulders can be varied.

Another object is to provide a multipurpose rotatable traction/treatment table permitting patient rotation and dynamic lifting of a patient while standing, concurrently with selective patient body positionings as may be required in the treatment of disc herniations and other disorders and/or maintenance of proper human posture.

Yet another object of the invention is to provide a treatment table having a range of motion from zero to at least ninety degrees and, within that range, which can pivot from zero to at least ninety degrees, thereby providing the ability to achieve spinal positioning including spinal flexion, extension, lateral flexion, and axial spinal positioning and traction in the absence of a lower leg support assembly enabled by inherent torso support and placement of the human body at or near its center of gravity at the lower back support assembly.

A still further object is to provide a table which having a variety of pneumatic and other adjustments to permit that patients of widely disparate age, height and weight to be accommodated, without requirement of extended physician set up time.

Another object of the invention is to provide a multipurpose table that is simple to operate, weighted and designed for safety so as not to tip, and constructed of quality materials.

A yet further object is to provide a system in which the position of the upper torso support assembly may be varied relative to the lower back support assembly.

It is another object to provide a system than can concurrently or sequentially lift and/or rotate the patient, this providing various treatment options to the physician, including more effective and safer traction of vertebral segments.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front perspective view of the inventive multifunction chiropractic treatment table.

FIG. **2** is rear diagonal perspective view thereof.

FIG. **3** is a general side perspective view of the lumbar back support and calf and foot support assemblies.

FIG. **4** is a perspective view showing the vertical positioning of the calf/foot support assembly.

FIG. **5** is a view, similar to that of FIG. **4**, however showing the foot support portion elevated relative to the lumbar assembly.

FIG. **6** is a general view of calf and foot support assembly in which the mid section covers are removed, and showing the side-swing motion mechanism of the system.

FIG. **7** is a bottom view of the calf and foot support assembly showing the foot-lock housing thereof attached to the foot side brackets.

FIG. **8** is a side exploded view of the elements of calf-foot support assembly including foot tubing and foot side bracket groups of elements.

FIG. **9** is an exposed view of the interior elements of the calf and foot support assembly.

FIG. **10** is an assembly view of the major components of the calf and foot support assembly.

FIG. **11** are assembly views of the two major subgroups of the foot and calf support assembly.

FIG. **12** is an assembly view, further to FIG. **6**, of the elements associated with side-swing motion of the calf/foot support assembly.

DETAILED DESCRIPTION OF THE INVENTION

With reference to the views of FIGS. **1** and **2**, the present chiropractic treatment table for effecting extension, flexion, traction and distraction of the spine of a patient, to which the invention relates, may be seen to include a base **10** adapted to rest upon a floor **12** in a typical treatment room of a chiropractor, physical therapist, or other health professionals involved in physical medicine. The chiropractic table may be seen to optionally include a pair of elevation means **14** and **16** to enable positioning of patients of various heights on the table. Elevation means **14** and **16** preferably comprise extensible hydraulic pistons, each including upper ends which support a pivot axle **22**.

As may be appreciated in the view of FIG. **3**, pivot axle **22** is journalled within channel **23** of block support **25** of rigid upper body support platform **26**.

The instant multi-purpose treatment table thereby includes said upper support platform **26** having an upper part **28** and a lower part **30**. Said lower part **30** of rigid support platform **26** is secured to said pivot block **25** (see FIG. **3**) which is rotatable upon said pivot axle **22** at the approximate mid-point of lower part **30** of platform **26**. As may be further noted, said upper part **28** defines a plane which is directed at an angle of about thirty degrees relative to a plane defined by said lower part **30** of the upper support platform **26**. Such an angle is necessary in that it allows the patient's upper body to be ergonomically supported by a body support assembly **32** (See FIG. **1**), permitting the back to extend convexly and backward relative to base **10**. Support assembly **32** is mounted upon said upper part **28** of said rigid support platform **26**. Said body support assembly may or may not be divided into, and may or may not include, moveable sections with hydraulic or pneumatic pistons or other means for elevation and de-elevation of the body support assembly **32**. Said body support assembly may contain an integral air bladder for additional immobilization.

With reference to FIGS. **1** and **2**, the system may also be seen to optionally include a pair of positionally adjustable arm support means **42** and **44** which are located proximally to the sides of a body support assembly **32**. As is set forth below, said arm support means include a selectably adjustable rear portion **46** which is secured to said upper part **28** of the rigid support platform **26**. Said arm support means **42** and **44** include (i) substantially horizontal arm rests **50**; (ii) a chest and shoulder support **51** situated posteriorly and angled inwardly in a patient direction from said arm rest; and

(iii) a tilted hand grip **52** depending integrally upwardly and inwardly, proximally to said chest and shoulder supports **51**.

The present treatment table may be seen to further include a lumbar and buttock support assembly **40**, which is displaced from said body support assembly **32**. Lumbar assembly **40** is connected to telescoping piston rods **53** and **55** (see FIG. **3**) or other means which provide for elevation and de-elevation thereof. Said lumbar assembly may include an internal air cushion in the form of an inflatable air bladder, for added support and tissue mobilization. The same is true of the upper torso support assembly. Foot-and-calf assembly control bar **209** and foot rest **204** may also be seen in FIG. **1**.

In FIG. **3** is shown a general view of lumbar back assembly **160** and of calf/foot support assembly **200**. Therein, said figure depicts a general position of the lumbar support assembly in relation to the calf/foot support assembly and rigid support platform **26**, including upper and lower portions of **28** and **30** respectively, associated with the platform **26**. Also, shown in FIG. **3** is lumbar cushion **40** and lumbar cushion hydraulic/pneumatic extension rods **53/55** which, in combination with hydraulic pistons **138/139**, determine the angle of the lumbar cushion relative to lower portion **30** of the rigid support platform **26**. Said cylinders **138/139** rest upon a rigid support frame plate **150** which itself is supported by a rigid support frame space bar **152** and a block support **25** which includes a main horizontal axial channel **23** through which pivot axle **22** (see FIGS. **1** and **2**).

Further shown in FIG. **3** is calf/foot support link casting **212**, foot tubing **214**, foot rest **202** and ankle cushion **204**, all of calf/foot support assembly **200**. Also shown therein is side-swing mechanism **290** of calf/foot support assembly **200**.

In FIG. **4** is a more detailed illustration of the calf/foot support assembly and its relationship to rigid support platform **26**. More particularly, therein are shown calf/foot support assembly vertical positioning hydraulics **208** and their relationship to said calf/foot support link casting **212** and lumbar support casting **112**. Also shown is link casting axle **213** of the calf/foot support link casting **212**, said side-swing assembly **290** and its transverse bar **215**, foot tubing **214**, foot side bracket **274**, foot lock housing **264**, foot rest **202**, ankle cushion **204**, and calf/foot support assembly control bar **209**. Also shown therein are arrows U, D, R, and L which illustrate the up-down and left-right degrees of freedom of the calf/foot support assembly **200**.

The calf/foot support assembly **200** is shown in a raised position in FIG. **5**. Therein the vertical-positioning hydraulic rods **208** are shown fully retracted, the same corresponding the upper limit of the vertical position of the assembly.

In FIG. **6** is shown a general view of the calf/foot support assembly in which the mid-section covers thereof have been removed. It is noted that the subassemblies of the calf/foot support assembly rest upon foot tubing **214** (see also FIG. **5**) that is pivotally attached for the calf/foot support link casting **212**, which itself is pivotally attached to the rigid support platform (see axial **213**) for vertically positioning, thereby permitting the calf/foot support assembly to be lifted up to 30° above the horizontal plane of lower part **30** and as much as 15° therebelow.

Further shown in FIG. **6** are side handles **66** of the system and, with respect to sided-swing assembly **290**, there is shown transverse bar **215**, vertical pivot axle **294** which attaches foot support assembly **200** to foot tubing **214**, side-swing solenoid **298**, and solenoid journal plate **299**. Accordingly, upon actuation of the side-swing solenoid **298** by control **303** of the calf/foot support assembly control bar **209**, journal plate **299** is rotated to the left upon side swing control bar **292** and, therewith, the calf/foot support assembly **200**.

In FIG. **7** is shown the bottom view of the assembly **200** inclusive of foot side brackets **274**. In said figure a foot mechanical lock **266** is fixed to foot lock housing **264** by two mechanical lock brackets **268** and **269**. A mechanical lock rod **220** is rigidly screwed onto a thrust plate **226** of the assembly **200**. When mechanical lock solenoid **276** is activated, said foot mechanical lock **266** is released from mechanical lock rod **220**, permitting foot-lock housing **264** to slide along the mechanical lock rod **220**, thereby adjusting the overall length of the calf/foot support assembly **200**, to accommodate different patient heights before the assembly is locked into position. During powered foot traction operation of the system, hydraulic rod **221**, spring assembly **224**, thrust plate **226** and the entire foot side bracket group **260** (in FIG. **11**), move in unison.

In the exploded view of FIG. **8** may be seen the front half of foot side brackets **274** and middle slides **228**. Therein hydraulic cylinder **218**, is mounted inside of foot tubing **214**, from which hydraulic rod **221** is powered. The other end of the hydraulic rod **221** is rigidly fixed into spring assembly **224** which in turn is mounted upon thrust plate **226**. Said thrust plate **226** is itself mounted on middle slides **228** for hydraulic/pneumatic linear traction. Middle slides **228** slide upon outer slides **216**.

Also attached to thrust plate **226** is said mechanical lock rod **220** which extends in parallel with the rest of foot tubing group **210**. Inner slides **270** of foot side bracket group **260** are inserted into said middle slides **228** to enable linear movement. Mechanical lock **266**, which is fixed to foot side bracket group **260** through the housing thereof, slides along mechanical lock rod **220** as the foot side bracket group **260** moves linearly relative to the foot tubing group **210**. The sliding movement of foot side bracket group **260** is used for patient height adjustment.

After mechanical lock **266** is locked upon mechanical lock rod **220**, said foot side bracket group is locked relative to hydraulic rod **221** which can then be used to provide linear traction power to the foot side bracket group **260**. Such power traction is linearly guided by said middle slides **228** moving into outer slides **216**, as well as by the action of hydraulic cylinder **218** itself, which is a foot traction cylinder.

In FIG. **9** is shown an exposed view of calf/foot support assembly **200** including, particularly, the foot tubing group **210** thereof. Foot tubing **214** may be seen, revealing hydraulic cylinder **218** which is located therein. Further shown is one of foot side brackets **274**. It may be further seen that hydraulic rod **221** is connected to shock absorbing spring assembly **224** that is attached to thrust plate **226** which, in turn, is mounted upon middle slides **228** upon each side thereof. Inner slides **270** are fixed to the inside of foot side brackets **274**. Outer slides **216** are externally attached to the sides of foot tubing **214**. Middle slides **228** and inner slides **270** are indirectly locked by a mechanical lock in the foot lock housing **264** to insure transfer of hydraulic power to the foot side brackets. Also shown in FIG. **9** is load cell **219** which monitors over-pressure conditions at a proximal output of hydraulic cylinder **218**, and vertical pivot axle **294** upon which foot tubing **214** rotates.

In FIG. **10** is shown major components of calf/foot support assembly **200** including foot/calf support link casting **212**, vertical pivot axle **294**, foot tubing **214**, transverse bar **215**, ball-bearing slide assembly **232**, foot lock housing **264**, foot side brackets **274**, and thrust plate **226**. Therein,

foot tubing **214** houses a foot traction hydraulic assembly (not shown) and pivots horizontally upon vertical pivot axle **294** of foot/calf support link casting **212**. Ankle cushion, foot support assembly control bar (both not shown), and ankle harnesses mount on the foot side brackets and are slidably mounted upon foot tubing **214** by ball bearing slide assembly **232**. As noted in FIG. **7**, a mechanical locking assembly is located inside of foot lock housing **264** and operates to unlock the main components of the foot assembly when patient height adjustment is required.

In FIG. **11** is shown foot tubing group **210** and foot side bracket group **260**. Therein, the foot side bracket group **260** is pivotally attached to the foot support link casting **212** by vertical axial **294**, and houses the foot traction hydraulic assembly inclusive of hydraulic cylinder **218**, hydraulic rod **221**, and spring assembly **224**.

Foot side bracket group **260** is slidably attached to the foot tubing group **210** by means of said inner slides **270**, middle slides **228**, and outer slides **216**. Individual adjustments to accommodate patients heights are made by allowing mechanical lock **266** to slide upon mechanical lock rod **220**, thus locking foot mechanical lock to the mechanical lock rod after an adjustment of relative position of foot side bracket group **260** to the hydraulic rod **220** of the foot tubing group **210**.

FIG. **12**, which is related to FIG. **6**, is an illustration of the side-swing motion and side-swing assembly **290** of the calf/foot support assembly **200**. Therein calf/foot support assembly is pivotally attached to foot/calf support link casting **212** at vertical pivot axle **294** to effect sideway (left and right) movements of the calf and leg. The side-swing assembly (described more fully above in FIG. **6**) links to foot tubing **214** through vertical pivot axle **294** which connects solenoid journal plate **299** of the side-swing assembly **290** to transverse bar **215** which rests upon ball bearing slide assembly **232**. (See also FIG. **10**). Thereby, actuation of side-swing solenoid **298** by side motion control switch **303** will govern of the left to right motion of the foot support assembly. Once locked by side-swing mechanical lock **301**, the relative side-swing angle of the calf/foot support assembly **200** relative to lower part **30** is maintained.

As also shown in FIG. **12** are the controls associated with calf/foot support assembly control bar **209**, namely, power traction Y axis control switches **300** and **302** as well as patient height, Y axis adjustment switch **304**. Also shown in FIG. **12** is LCD reader **207**, a foot rest **202**, ankle cushion **204**, and ankle strap brackets **203**.

It is to be understood that FIGS. **1** and **2** further illustrates a system control **74** for use by the doctor which includes the following function buttons:

1.	TBL LFT =	Table Lift.
2.	TBL LWR =	Table Lower.
3.	ROT BACK =	Rotate Table Back.
4.	ROT FWD =	Rotate Table Forward.
5.	ARM UP =	Translational Arm Height Up.
6.	ARM DWN =	Translational Arm Height Down.
7.	OPEN	
8.	OPEN	
9.	ARM R. UP =	Arm Rotate Up.
10.	ARM R. DOWN =	Arm Rotate Down.
11.	LUM IN =	Lumbar in
12.	LUM OUT =	Lumbar Out
13.	OPEN	
14.	OPEN	
15.	RBK TL =	Rotate Table Back with Table Lift.
16.	RFW TLW =	Rotate Table Forward with Table and Lower Table.
17.	SAFETY ON AND OFF =	A safety on and off button is included which stops pneumatic/hydraulic piston and ceases all table movement.

As a safety measure, controls may also be incorporated into overhead gripping means **54** or into handgrips **42** (see FIGS. **1** and **2**), with optional patient control of other functions.

While there has been shown and described the preferred embodiment of the instant invention it is to be appreciated that the invention may be embodied otherwise than is herein specifically shown and described and that, within said embodiment, certain changes may be made in the form and arrangement of the parts without departing from the underlying ideas or principles of this invention.

I claim:

1. A calf/foot support and treatment table for extension, flexion, traction, distraction, and lateral movement of the body of a patient, comprising:

(a) a base adapted to rest upon a floor;

(b) system support means having an upper end and a lower end integrally secured to said base;

(c) a rigid support platform having a lower part and an upper part, said support platform being secured to said system support means; and

(d) a calf/foot support assembly transversely attached to said lower part of said support platform, said calf/foot support assembly comprising a foot tubing group which comprises a hydraulic cylinder and a hydraulic rod; a foot side bracket group attached to said foot tubing group and mechanically locked relative to said hydraulic rod; and an ankle cushion mounted on top of foot side brackets of said foot side bracket group; said hydraulic cylinder enabling a sliding movement of said foot side brackets and said ankle cushion for linear traction.

2. The calf/foot support and treatment table of claim **1**, wherein said foot tubing group further comprises a spring assembly and a thrust plate mounted upon said spring assembly; and one end of said hydraulic rod is fixed into said spring assembly; thereby during a powered foot traction operation, said hydraulic rod, said spring assembly, said thrust plate and said foot side bracket group move in unison.

3. The calf/foot support and treatment table of claim **2**, wherein said foot tubing group further comprises a mechanical lock, a mechanical lock solenoid and a mechanical lock rod extending in parallel with said hydraulic rod and having one end connected onto said thrust plate; wherein when said mechanical lock solenoid is activated, said mechanical lock is released from said mechanical lock rod, permitting adjusting an overall length of said calf/foot support assembly.

4. The calf/foot support and treatment table of claim **2**, wherein said foot tubing group further comprises a foot tubing housing said hydraulic cylinder, outer slides attached to sides of said foot tubing, and middle slides mounted on said thrust plate; and wherein said middle slides slide upon outer slides for linear traction.

5. The calf/foot support and treatment table of claim **4**, wherein said foot side bracket group comprises inner slides fixed to an inside of said foot side brackets; and said middle slides of said foot tubing group are inserted onto said inner slides for linear movement.

6. The calf/foot support and treatment table of claim 1, wherein said calf/foot support assembly further comprises a calf/foot support assembly control bar which controls power traction and patient height adjustment.

7. The calf/foot support and treatment table of claim 1, wherein said calf/foot support assembly is pivotally attached to said lower part of said support platform, enabling a vertical movement of said calf/foot support assembly in a range relative to a horizontal plane of said lower part of said support platform.

8. The calf/foot support and treatment table of claim 7, wherein said vertical movement is in a range from 30° above said horizontal plane to 15° below said horizontal plane.

9. The calf/foot support and treatment table of claim 1 further comprising a side-swing assembly permitting lateral movement of said calf/foot support assembly relative to a longitudinal axis of said support platform.

10. The calf/foot support and treatment table of claim 1 further comprising a lumbar support assembly disposed on said lower part of said support platform.

11. The calf/foot support and treatment table of claim 10 further comprising means for independent articulation and movement of said lumbar assembly.

12. A calf/foot support and treatment table for extension, flexion, traction, distraction, and lateral movement of the body of a patient, comprising:

(a) a base adapted to rest upon a floor;

(b) system support means having an upper end and a lower end integrally secured to said base, said support means including a pivot axle proximal to said upper end thereof;

(c) a rigid support platform having a lower part and an upper part, said support platform pivotally secured to said pivot axle of said system support means;

(d) a lumbar support assembly disposed on said lower part of said support platform; and

(e) a calf/foot support assembly transversely attached to said lower part of said support platform, said calf/foot support assembly comprising a foot tubing group which comprises a hydraulic cylinder and a hydraulic rod; a foot side bracket group attached to said foot tubing group and mechanically locked relative to said hydraulic rod; and an ankle cushion mounted on top of foot side brackets of said foot side bracket group; said hydraulic cylinder enabling a sliding movement of said foot side brackets and said ankle cushion for linear traction.

13. The calf/foot support and treatment table of claim 12, wherein said foot tubing group further comprises a spring assembly and a thrust plate mounted upon said spring assembly; and one end of said hydraulic rod is fixed into said spring assembly; thereby during a powered foot traction operation, said hydraulic rod, said spring assembly, said thrust plate and said foot side bracket group move in unison.

14. The calf/foot support and treatment table of claim 13, wherein said foot tubing group further comprises a mechanical lock, a mechanical lock solenoid and a mechanical lock rod extending in parallel with said hydraulic rod and having one end connected onto said thrust plate; wherein when said mechanical lock solenoid is activated, said mechanical lock is released from said mechanical lock rod, permitting adjusting an overall length of said calf/foot support assembly.

15. The calf/foot support and treatment table of claim 13, wherein said foot tubing group further comprises a foot tubing housing said hydraulic cylinder, outer slides attached to sides of said foot tubing, and middle slides mounted on said thrust plate; and wherein said middle slides slide upon outer slides for linear traction.

16. The calf/foot support and treatment table of claim 15, wherein said foot side bracket group comprises inner slides fixed to an inside of said foot side brackets; and said middle slides of said foot tubing group are inserted onto said inner slides for linear movement.

17. The calf/foot support and treatment table of claim 12, wherein said calf/foot support assembly further comprises a calf/foot support assembly control bar which controls power traction and patient height adjustment.

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